

# Public Education as a Mitigation Measure at the Keene Middle School Site



**Robert G. Goodby, Ph.D.**



NH Rt. 12

27CH187

Tenant  
Swamp

# The Keene Middle School Project



GRAPHIC SCALE

0 50 100 150 200 250

# Indian History in Keene

The country was a wilderness, covered with dense forests through which no roads had yet been opened. Roving bands of Indians prowled those forests for game, or threaded them in single file, on habitual trails, to and from their more permanent abodes. For many years but few Indians had lived in this immediate vicinity

*A History of the Town of Keene. Keene, NH by Simon Griffin 1904, p. 29*



298 Main Street, Keene

# Low Water Reveals Indian Dam On Ashuelot River In Swanzey

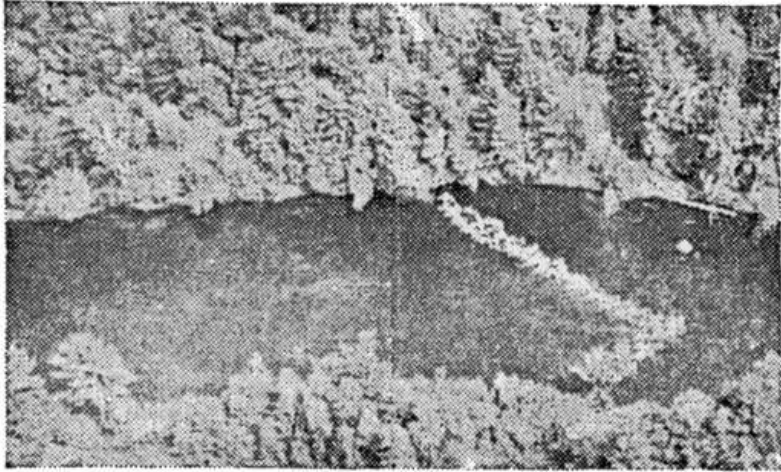


Photo by Jack Teehan

**INDIAN DAM.** This aerial view shows a V-shaped dam built by the Indians on the Ashuelot river downstream from the covered bridge in Swanzey Center. Mentioned in the Swanzey town history, the dam is rarely exposed to view.

By JACK TEEHAN

A landmark of Indian culture in Cheshire county became visible once more this week when the old Indian dam on the Ashuelot river in Swanzey was exposed.

The stream level was lowered when gates were opened at the Homestead Woolen Mill dam in West Swanzey.

Seen only by a few county residents due to its remote location several hundred yards from the nearest highway, the V-shaped structure, almost hidden by eel grass is mentioned in the Swanzey town history and was built before the early settlers arrived.

Constructed with boulders, the dam points downstream in a long V. The stream is about 100 feet wide at that point.

The apex of the V is open and it is believed that it was a favorite Indian fishing spot. A flat boulder was located below the dam and was probably used as a platform for the spearing of salmon in the stream as they came through the opening in the dam.

A score of Indian fireplaces were ploughed up near the dam in the 19th century indicating that a tribal village was located in the area. River stones were used to build the fireplaces inside wigwams.

July 12<sup>th</sup> 1950



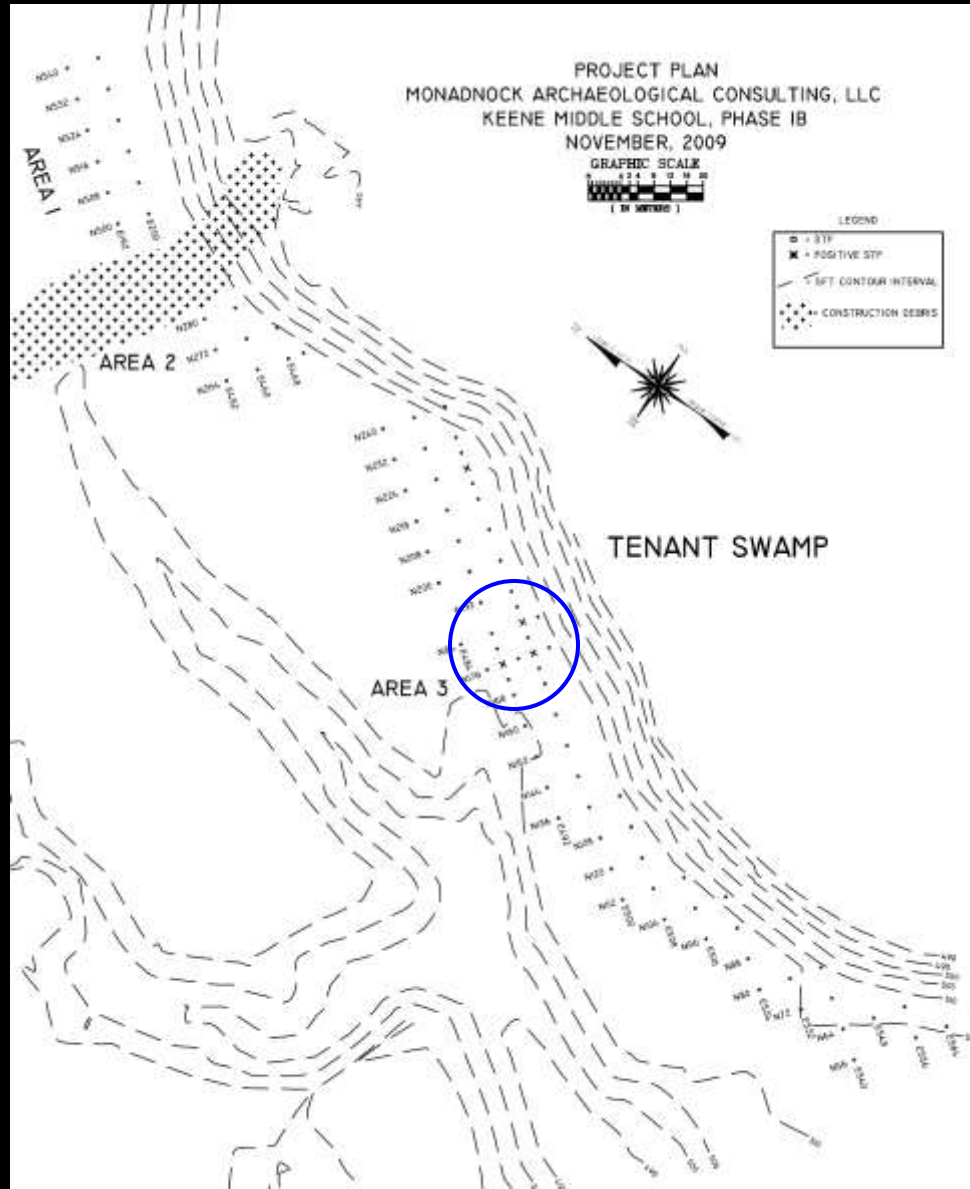
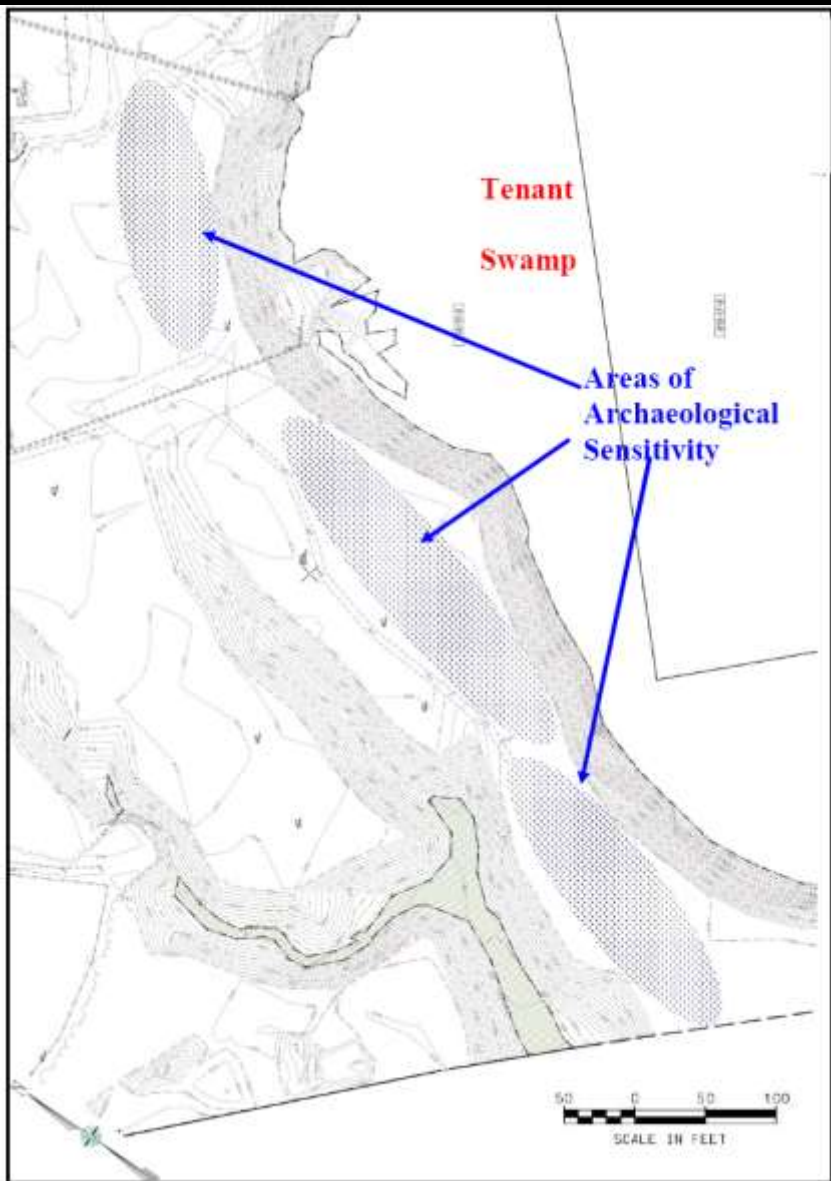
# Phase IA Archaeological Sensitivity Assessment

## Background Research, Visual Inspection

Portions of the project area determined to be sensitive for Native American sites based on their environmental setting and the lack disturbance. Phase IB study recommended.



# The KMS Project: Phase IB Intensive Archaeological Investigation



# Phase IB Artifacts



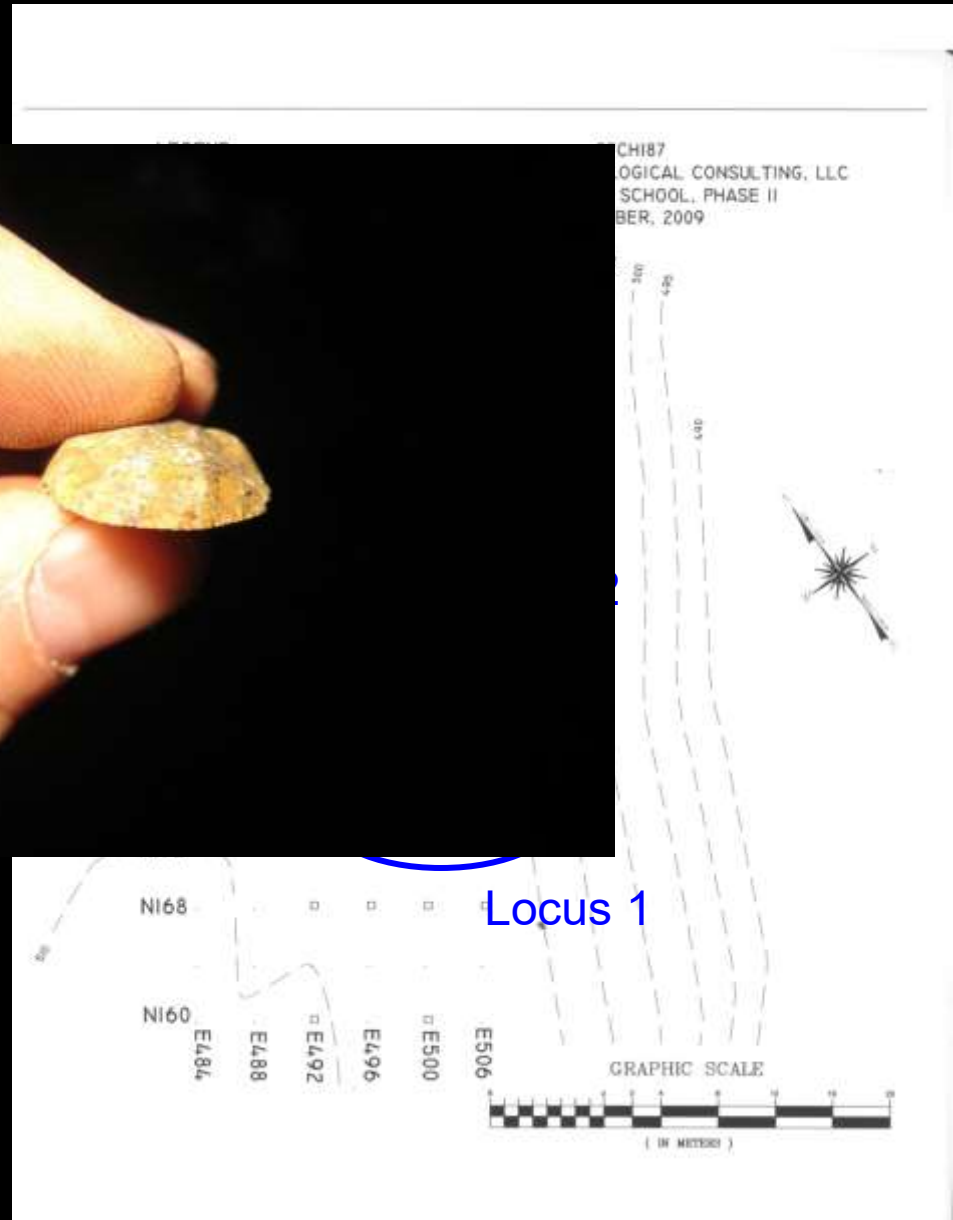
**Jefferson and Mt. Jasper Rhyolite**



**Munsungun Chert**

**Based on the age (c. 10,500-12,000 years before present) and undisturbed nature of the site a Phase II Determination of Eligibility Study is recommended.**

# Results of the Phase II Study



# Phase II Artifacts



**Four flaked stone tools, all consistent with a Paleoindian occupation**

**Over 150 additional flakes**

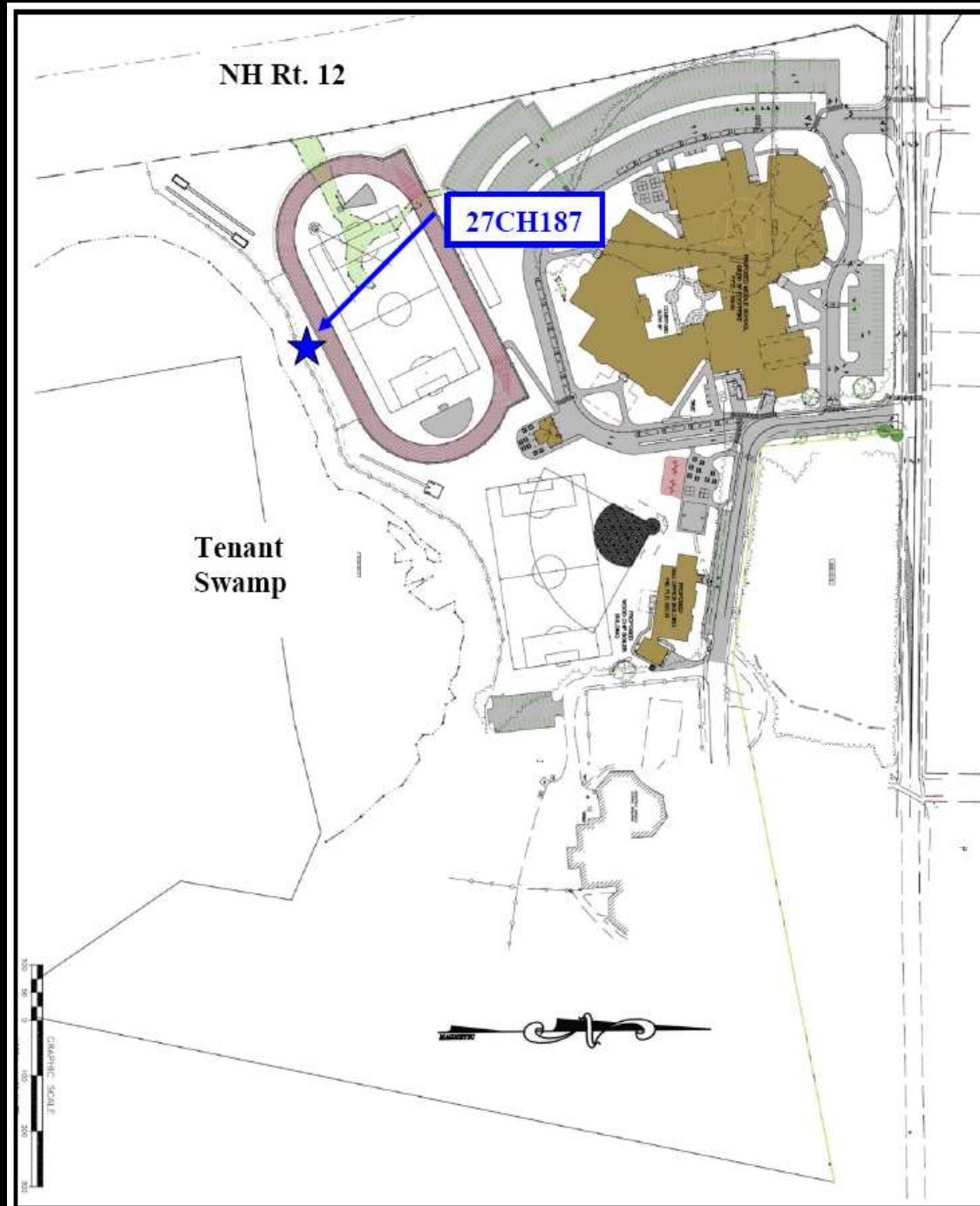
**Six fragments of calcined bone identified as “large mammal”**

**Site is determined eligible for inclusion on the National Register of Historic Places, based on its age and integrity**

# Options

## Redesign of the Middle School Project

### Mitigation



# Phase III: Mitigation and Data Recovery

**Additional testing further back on terrace to look for more loci**

**Complete excavation of all identified Paleoindian sites**

**Future testing of SAU-owned property in vicinity**

**Public Education**

# Research Team



**Tonya Largy, Harvard University**



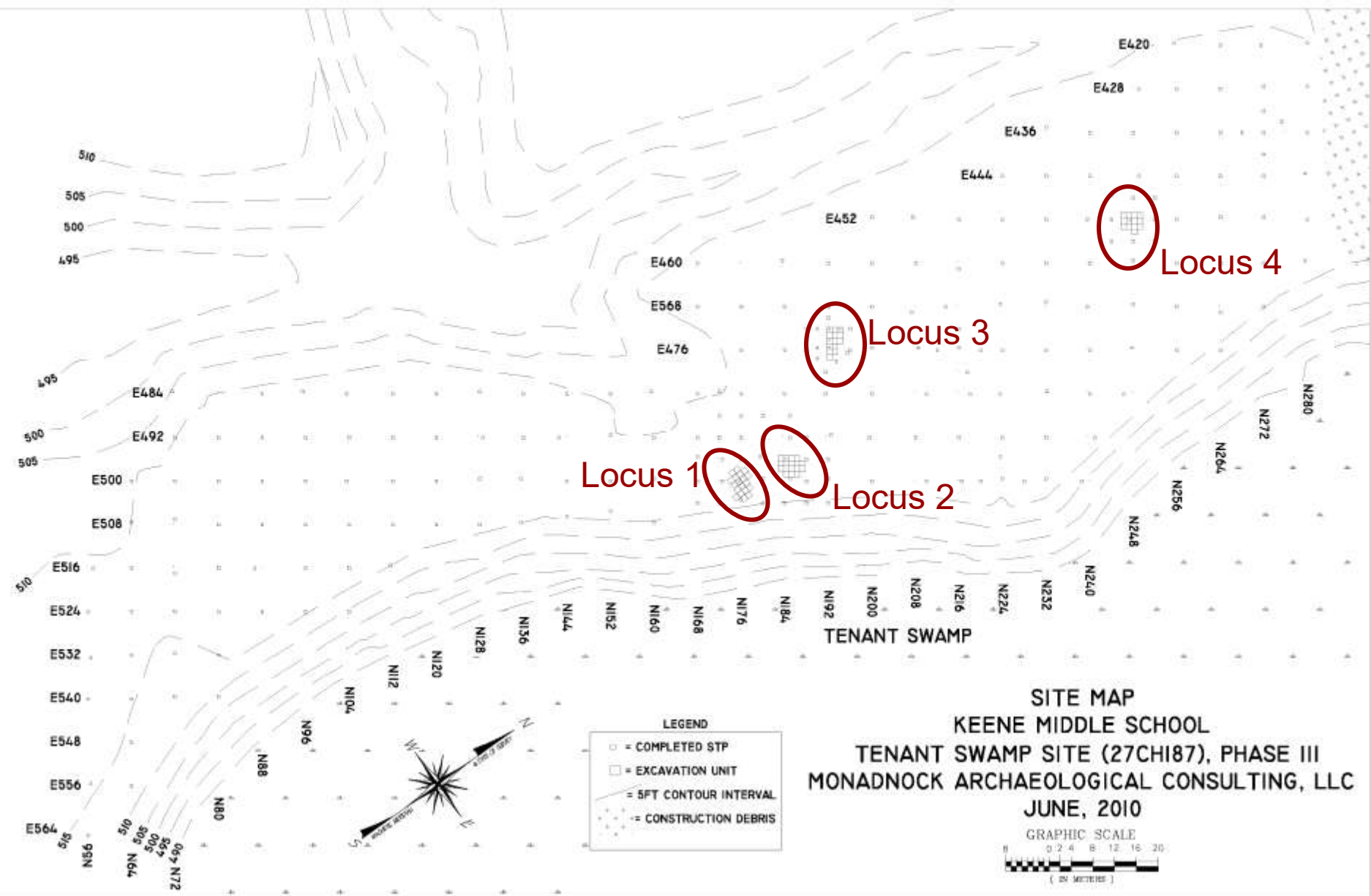
**Heather Rockwell, University of Wyoming**



**Chris Dorion, Independent Geologist**



**Steve Pollock, University of Southern Maine**



# Results: Geomorphology



**Glacial Lake Ashuelot Drains c. 15,000 BP**

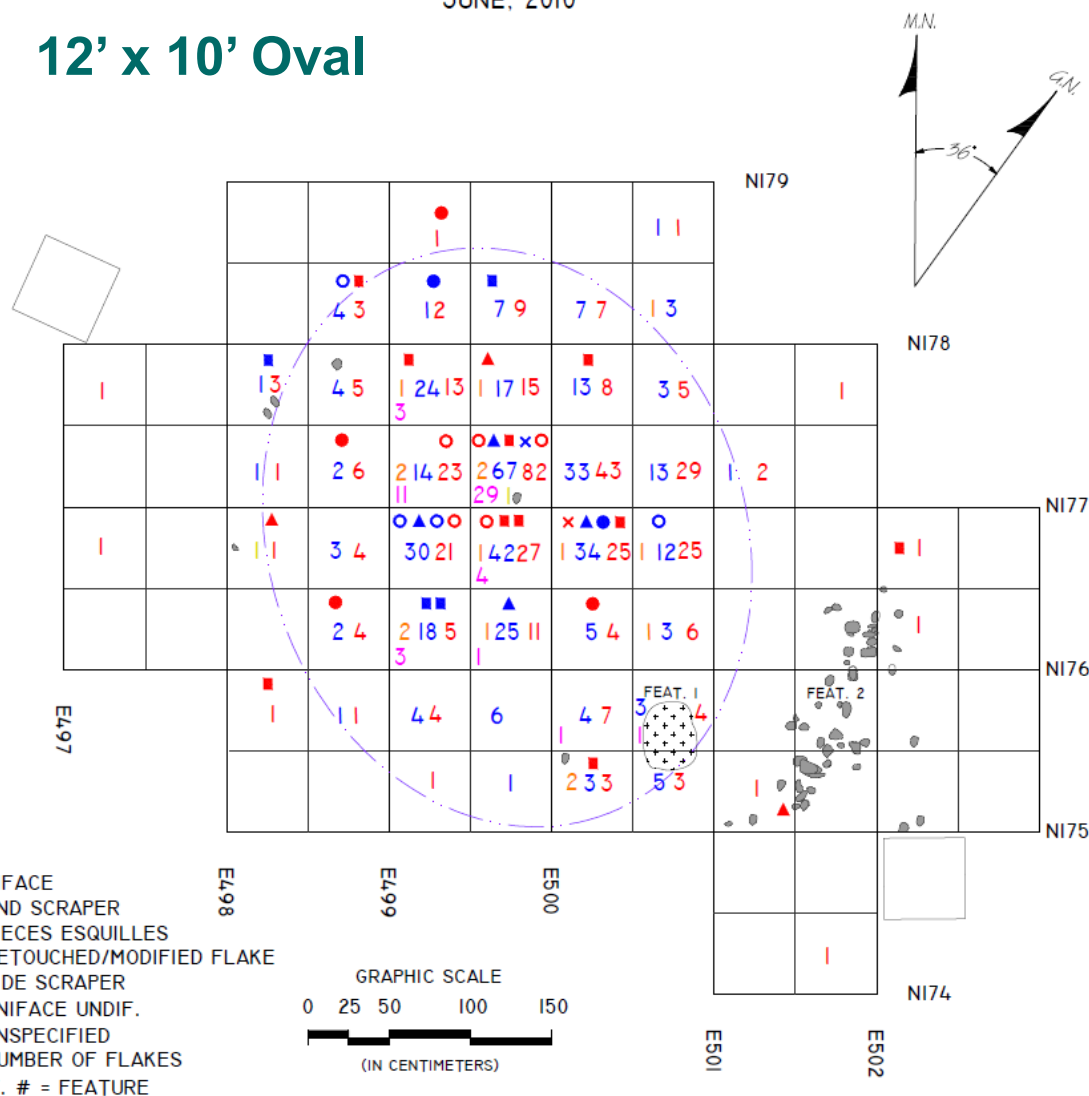
**Braided Outwash Plain forms as Lake Drains, depositing 70M of sand over the lake bed**

**Aeolian Mantle deposited during Younger Dryas**

**Ashuelot River Runs along Edge of Terrace at the Time of the Site's Occupation**

LOCUS 1, FEATURE 1 & 2  
 TOOL DISTRIBUTION & FLAKE COUNT BY QUAD  
 KEENE MIDDLE SCHOOL, TENANT SWAMP SITE (27CH187), PHASE III  
 MONADNOCK ARCHAEOLOGICAL CONSULTING, LLC  
 JUNE, 2010

12' x 10' Oval

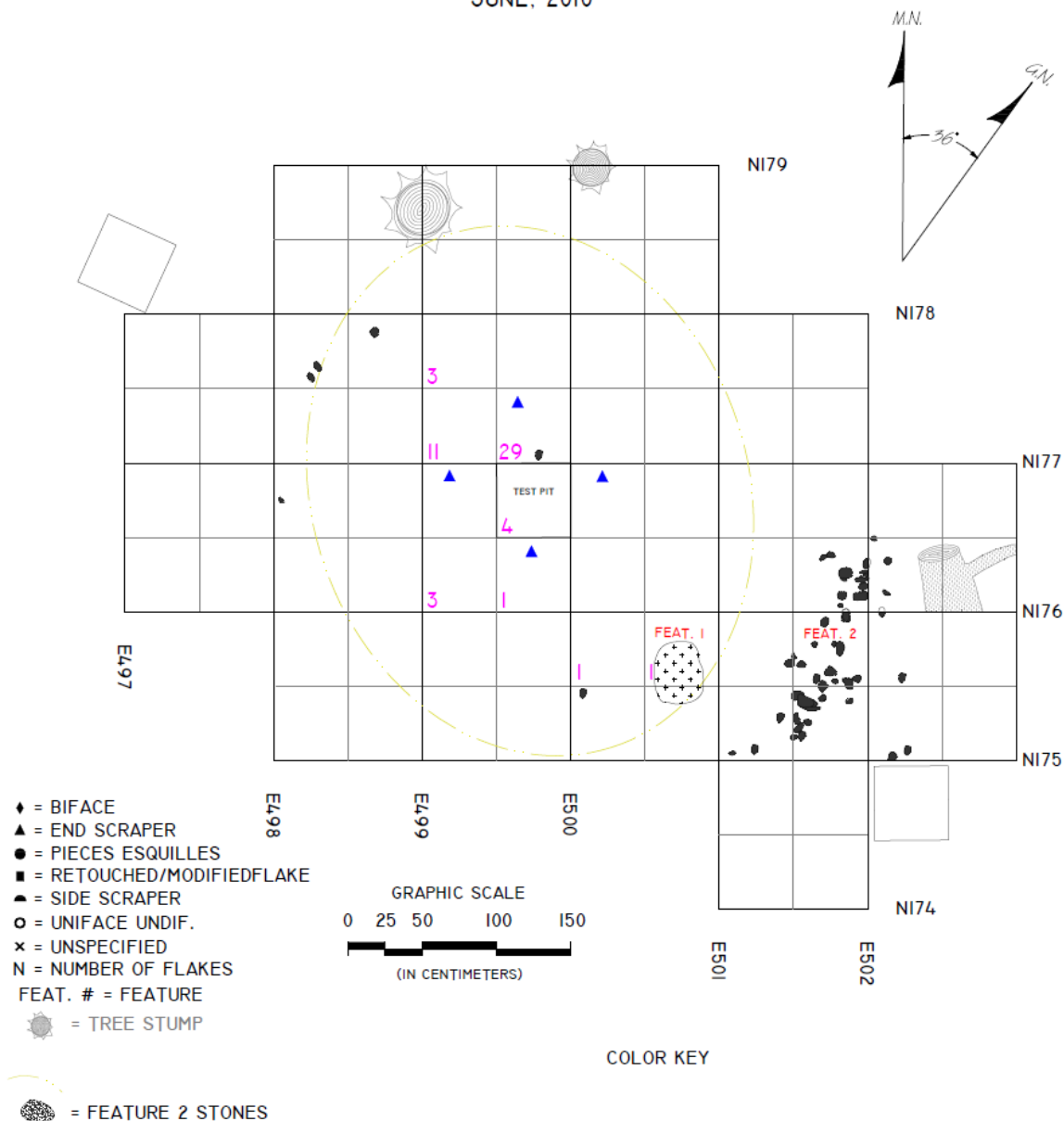


# Results: Locus 1



# Locus 1 End Scrapers and Bone

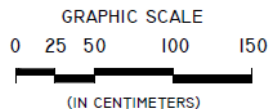
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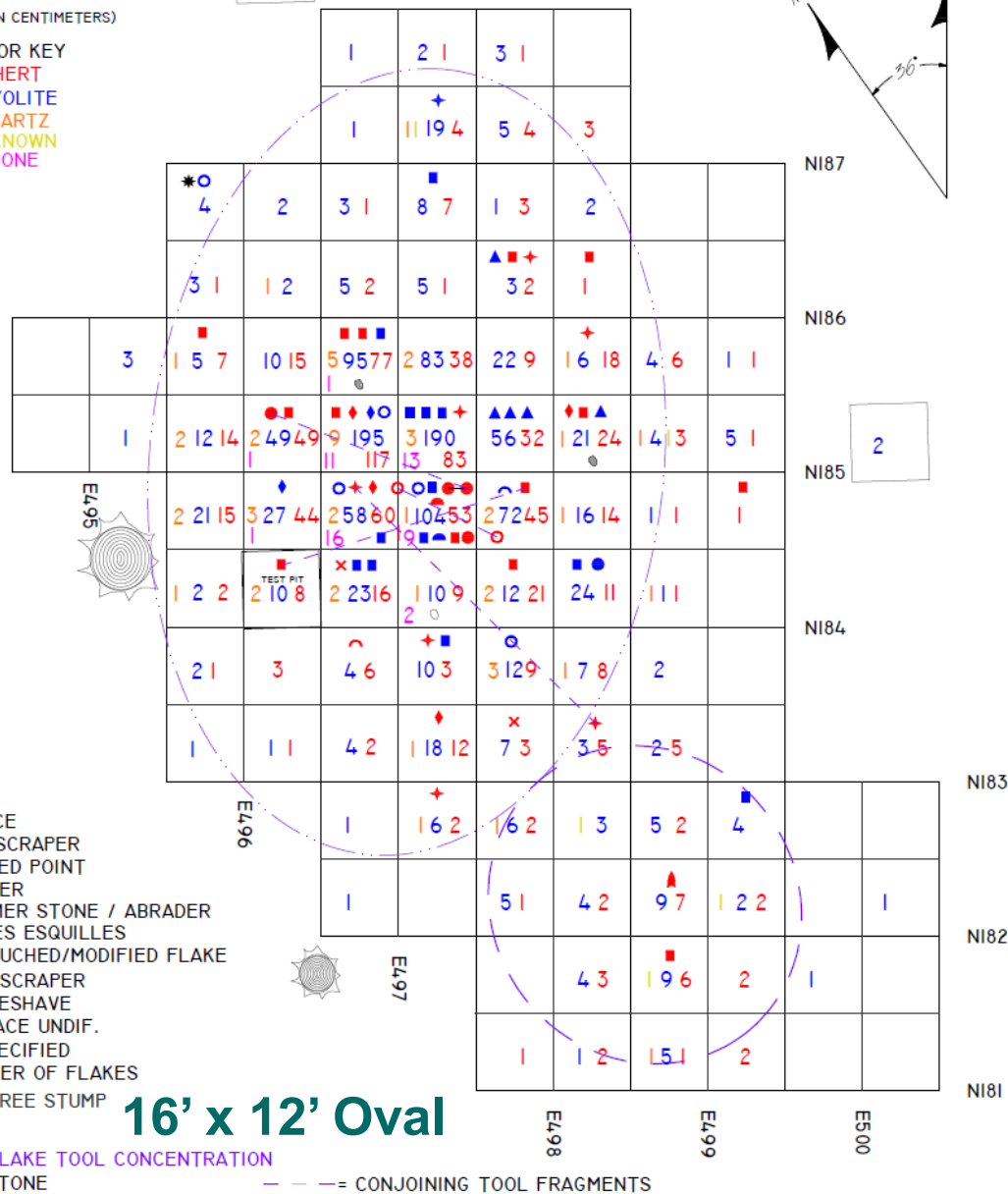
# Locus 2



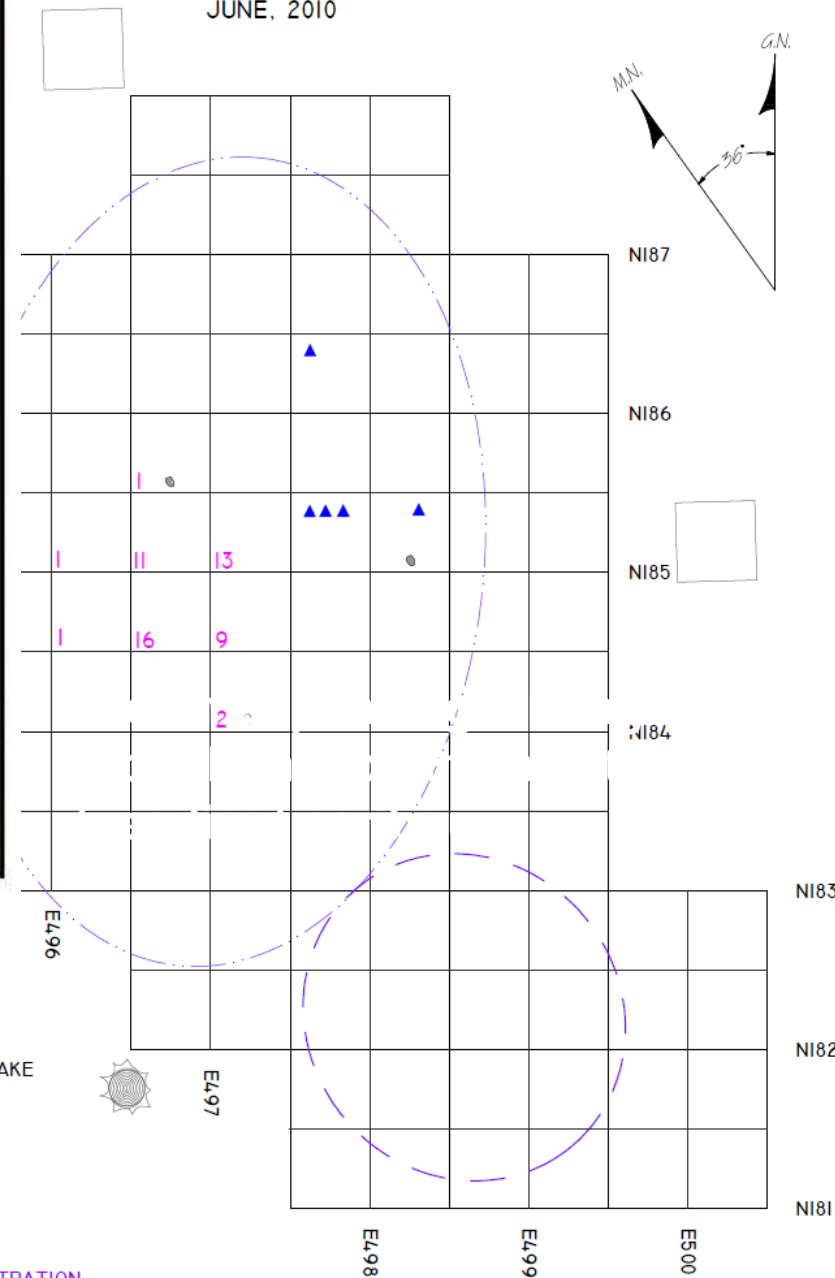
## LOCUS 2 TOOL DISTRIBUTION & FLAKE COUNT BY QUAD KEENE MIDDLE SCHOOL, TENANT SWAMP SITE (27CHI87), PHASE III MONADNOCK ARCHAEOLOGICAL CONSULTING, LLC JUNE, 2010



COLOR KEY  
CHERT  
RHYOLITE  
QUARTZ  
UNKNOWN  
BONE



LOCUS 2  
 TOOL DISTRIBUTION & FLAKE COUNT BY QUAD  
 E SCHOOL, TENANT SWAMP SITE (27CHI87), PHASE III  
 ADNOCK ARCHAEOLOGICAL CONSULTING, LLC  
 JUNE, 2010



caribou

deer



**FIGURE 3. Proximal Phalanx of Caribou & Deer**  
 (Photo taken by Dr. Arthur E. Spiess)

# House Floor Analogy



Inuit shelter, northern Canada, early 20<sup>th</sup> century ([firstpeoplesofcanada.com](http://firstpeoplesofcanada.com) )

JUNE, 2010



# Radiocarbon Dating Calcined Bone



**BETA ANALYTIC INC.**

DR. M.A. TAMERS and MR. D.G. HOOD

4985 S.W. 74 COURT  
MIAMI, FLORIDA, USA 33155  
PH: 305-667-5167 FAX: 305-663-0964  
beta@radiocarbon.com

## REPORT OF RADIOCARBON DATING ANALYSES

Dr. Robert G. Goodby

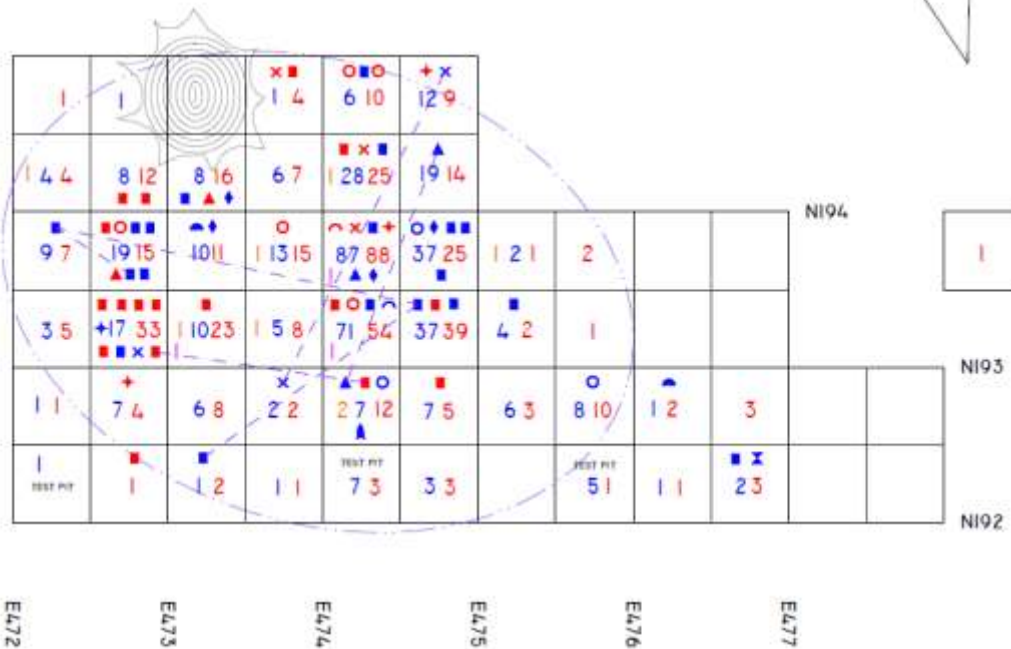
Report Date: 8/9/2012

Franklin Pierce University

Material Received: 7/27/2012

Sample Data	Measured Radiocarbon Age	$^{13}\text{C}/^{12}\text{C}$ Ratio	Conventional Radiocarbon Age(*)
Beta - 326991 SAMPLE : 27CH18702 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (cremated bone carbonate): bone carbonate extraction 2 SIGMA CALIBRATION : Cal BC 10710 to 10620 (Cal BP 12660 to 12570)	10680 +/- 50 BP	-24.0 o/oo	10700 +/- 50 BP

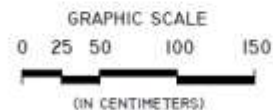
LOCUS 3  
TOOL DISTRIBUTION & FLAKE COUNT BY QUAD  
KEENE MIDDLE SCHOOL, TENANT SWAMP SITE (27CHI87), PHASE III  
MONADNOCK ARCHAEOLOGICAL CONSULTING, LLC  
JUNE, 2010



13' x 10' Oval

- ◆ = BIFACE
- ✕ = CHOPPER
- ▲ = END SCRAPER
- ▲ = FLUTED POINT
- ✚ = GRAVER
- = RETOUCHE/MODIFIED FLAKE
- ▲ = SIDE SCRAPER
- = SPOKESHAVE
- = UNIFACE UNDEF.
- ✕ = UNSPECIFIED
- N = NUMBER OF FLAKES
- = TREE STUMP

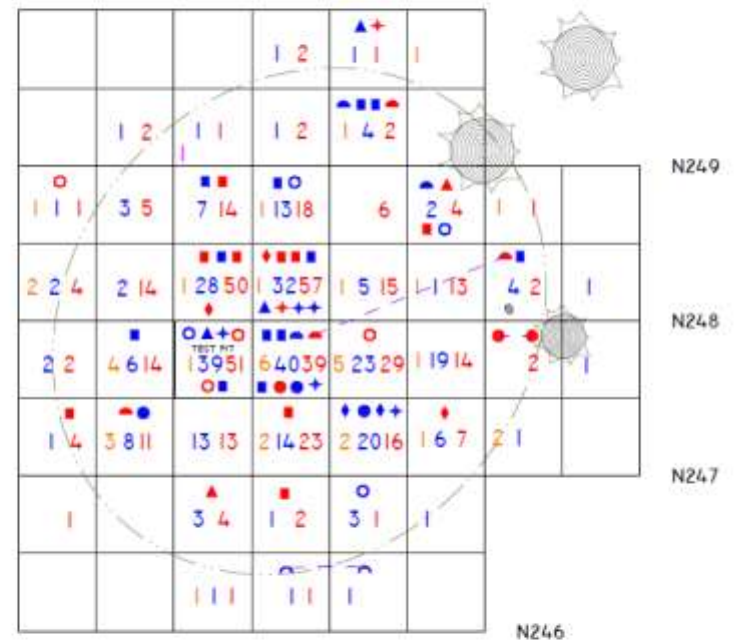
COLOR KEY  
CHERT  
RHYOLITE  
QUARTZ  
BONE







- - - = FLAKE/TOOL CONCENTRATION
- - - = CONJOINING TOOL FRAGMENTS

LOCUS 4  
TOOL DISTRIBUTION & FLAKE COUNT BY QUAD  
KEENE MIDDLE SCHOOL, TENANT SWAMP SITE (27CH187), PHASE III  
MONADNOCK ARCHAEOLOGICAL CONSULTING, LLC  
JUNE, 2010

A diagram showing a vertical line segment labeled  $GN$  and another line segment labeled  $MN$ . The angle between  $GN$  and  $MN$  is marked as  $36^\circ$ .



- ◆ = BIFACE  
 ▲ = END SCRAPER  
 ● = GRAVER  
 \* = PIECES ESQUILLES  
 ■ = RETOUCED/MODIFIED FLAKE  
 ▲ = SIDE SCRAPER  
 ○ = SPOKESHAVE  
 ○ = UNIFACE UNDF.  
 N = NUMBER OF FLAKES

-  = STONE
-  = TREE STUMP
-  = FLAKE/TOOL CONCENTRATION
-  = CONJOINING TOOL FRAGMENTS

COLOR KEY  
CHERT  
RHYOLITE  
QUARTZ  
UNKNOWN  
BONE

GRAPHIC SCALE

0 25 50 100 150

(IN CENTIMETERS)



# End Scrapers



40-1



216-1



294-1



310-1



323



339



348



371-1



598-1



361-1 / 369-1



357



942

1 CM

1 CM



771.1



802.1/1083.1



901.1



1025



533.1



582.1



718.2



772.1

1CM

1 CM

**Use wear: Hide Scraping, Hafting**

# Side Scrapers



# *Pieces Esquilles*

**Use wear: Hide Scraping,  
Cutting, Cutting Animal Tissue**



108.1



215.1



259.1



284.1



944.1

1 CM



974.1



116.1/141.4/1080.1



145.1

1 CM



235.1



442.4



543.3



556.1

1 CM



659.1



1086.1/1086.2

# Gravers



**Use wear: No specific use wear identified**

# Retouched/Utilized Flakes



**Use wear: Primarily cutting tools, also Hide Scraping, Prehension**

# Spokeshaves



20.1



218.1



781.3



857.1



568.1

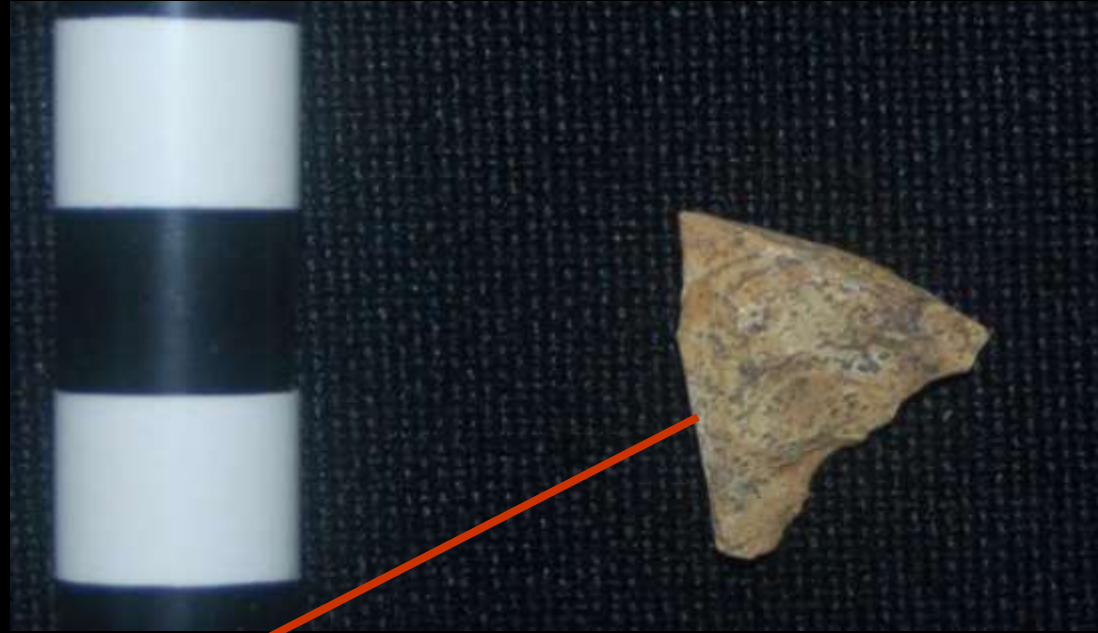


744.1



**Use wear: Wood Scraping,  
Cutting**

# Fluted Points

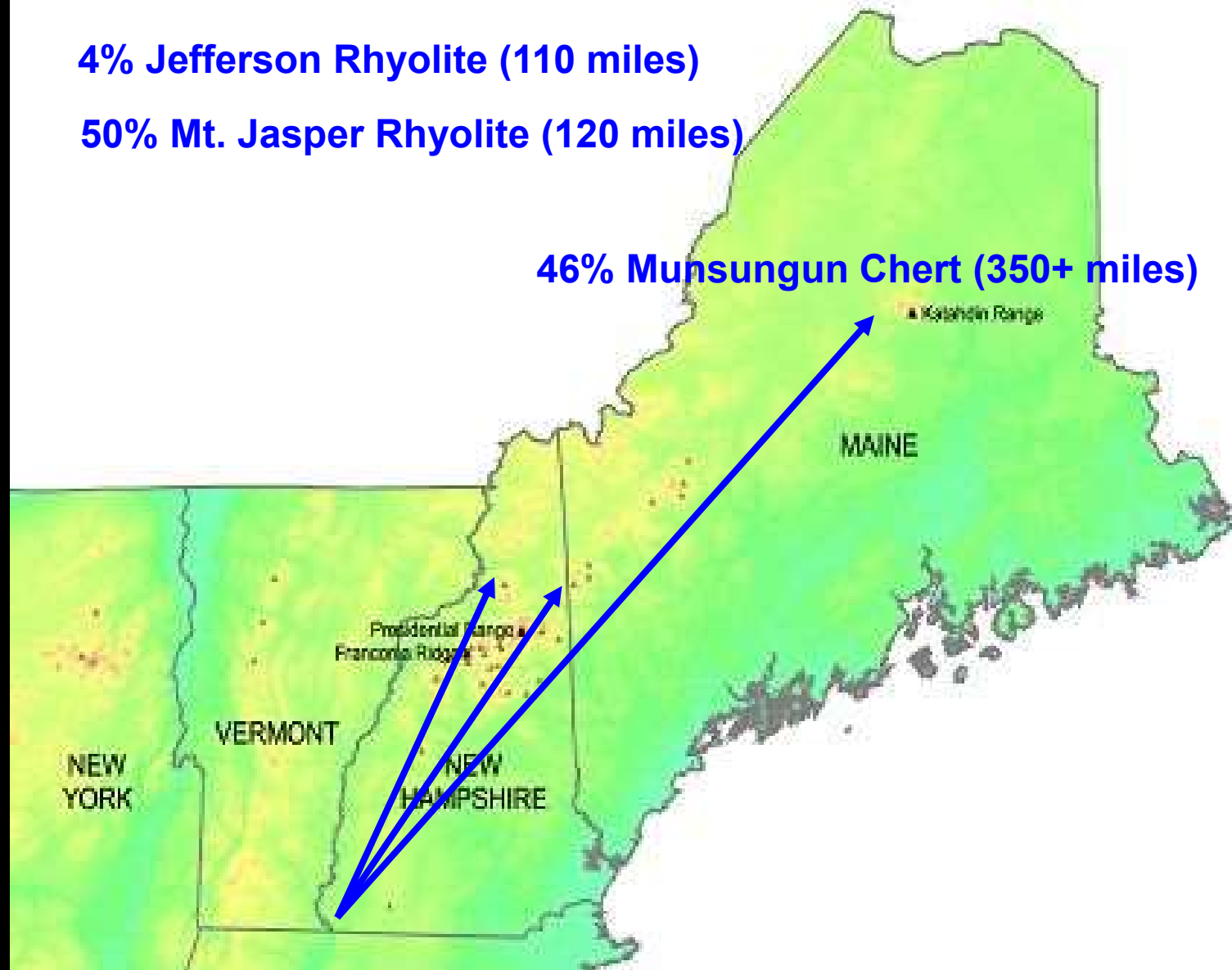


# The Stone: What Does this Reflect?

4% Jefferson Rhyolite (110 miles)

50% Mt. Jasper Rhyolite (120 miles)

46% Munsungun Chert (350+ miles)



# Public Education Component

Presentations for the Middle School Students



Presentations for the Community (with the Harris Center for Conservation Education)

7<sup>th</sup> Grade curriculum on settlement and migration in North America

# 6<sup>th</sup> Grade curriculum on archaeology and early humans



# Guided Walks on Outdoor Classroom and Activity Center Boardwalk



In collaboration with  
Antioch University



# The Outcome

